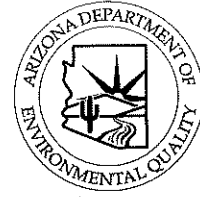


Janet Napolitano  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Stephen A. Owens  
Director

October 4, 2007  
FPU 08, 078

Ms. Leah Butler  
Remedial Project Manager (SFD-8-2)  
United States Environmental Protection Agency  
Region IX  
75 Hawthorn Street  
San Francisco, California 94105-3901

**Re: M52, OU1, Third Five Year Review Addendum Report – OU1 Groundwater Treatment Facility**

Dear Ms. Butler:

Please find attached the Third Five Review Addendum Report for the Operable Unit 1 Groundwater Treatment Facility. This document serves to remind ADEQ of the requirement to assess the status of the twenty recommendations listed in the 2006 Five Year Review.

If there are any questions please do not hesitate to contact me at (602) 771-4176.

Sincerely,

Christopher Gamache, Project Manager  
Federal Projects Unit

Cc: Bob Forsberg, R.G., LFR  
David Haag, ADEQ (electronic only)  
Nicole Coronado, ADEQ (electronic only)  
Robert Peeples, ADEQ (electronic only)

**Third Five Year Review Addendum Report  
Operable Unit 1 Groundwater Treatment Facility  
Motorola 52<sup>nd</sup> Street Superfund Site, Operable Unit 1 Area  
Phoenix, Arizona**

**I. Summary**

A third Five-Year Review for the Motorola 52<sup>nd</sup> Street Superfund Site, Operable Unit (OU) 1, located in Phoenix, Arizona, was completed in September 2006. OU1 is part of the Motorola 52<sup>nd</sup> Street Superfund Site that consists of three operable units: OU1, OU2, and OU3. The OU1 treatment system is located on the Motorola 52<sup>nd</sup> Street Facility formally owned/operated by Motorola and currently owned/operated by ON Semiconductor on the southwest corner of the intersection of 52<sup>nd</sup> Street and McDowell Road. The Arizona Department of Environmental Quality (ADEQ) is the lead agency for OU1.

The 2006 Five-Year Review identified several issues regarding the existing OU1 system capture; specifically, maintaining capture in bedrock when the alluvial aquifer is de-watering. A protectiveness determination of the OU1 interim remedy could not be made at the time of the review due to the zone of capture issues. On September 25, 2006, EPA concurred with the ADEQ's deferral of the protectiveness determination for the Motorola 52<sup>nd</sup> Street Superfund Site. EPA and ADEQ developed a list of follow-up actions and recommendations which are needed to determine the protectiveness of the OU1 Interim Remedy.

This document serves to remind ADEQ of the requirement to assess the status of the twenty recommendations listed in the 2006 Five Year Review. This assessment is crucial in order to determine whether there is enough information to evaluate the effectiveness and the protectiveness of the OU1 system for the next Five Year Review. EPA will continue to defer the protectiveness determination until the next Five Year Review which is due on September 25, 2011. At that time, ADEQ should have enough information to reanalyze the OU1 protectiveness statement. In the meantime, EPA is required to evaluate the progress made since the 2006 Five-Year Review in this Five-Year Review Addendum Report.

**II. Purpose**

The purpose of this Five-Year Review Addendum is to provide an update on the twenty follow-up actions and recommendations ADEQ and EPA agreed to complete in order to address the outstanding issues in the OU1 Third Five-Year Review.

### **III. Summary of 2006 Five-Year Review**

The Third Five-Year Review for the Motorola 52<sup>nd</sup> Street Superfund site, OU1, located in Phoenix, Arizona was conducted by LFR Inc. (LFR) on behalf of ADEQ. The review period was from September 30, 2001 through July 2006.

EPA and ADEQ were required to conduct the Third Five-Year Review pursuant to Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). Together, these regulations require that the remedial actions resulting in any hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure be reviewed every five years to assure protection of human health and the environment. Since hazardous substances, pollutants, or contaminants are left on site above levels that allow for unlimited use and unrestricted exposure, this review is required for the OU1 site. The purpose of the Five-Year Review is to determine whether OU1 continues to meet remedial objectives and is protective of human health and the environment.

The five-year review consisted of the following activities: (1) review of relevant documents; (2) interviews with appropriate operations staff, state and federal agencies, local government officials, and concerned community members; and (3) a site inspection.

The assessment identified issues in the review of the existing OU1 system capture analyses. The problems include a lack of adequate groundwater data as well as several data gaps that need to be filled in order to fully evaluate the OU1 capture effectiveness. A review of applicable or relevant and appropriate requirements (ARARs) determined that there are no newly promulgated standards that affect OU1; however, new ARARs and To Be Considered (TBCs) are to be determined for the final remedy.

A protectiveness determination of the OU1 interim remedy was not made due to the zone of capture issues identified in the review. EPA and ADEQ developed a list of follow-up actions and recommendations which are needed to determine the protectiveness of the OU1 Interim Remedy. The actions require the efforts of Freescale and agency oversight to be completed. An iterative approach with effective communication among the stakeholders throughout the recommended actions is needed to address these issues quickly and effectively.

#### IV. Issues that required a deferral

Issue #	Issue Type	Issues	Protectiveness Affected?	
			Current	Future
1	Groundwater Capture	Capture and containment can only be confirmed with an adequate monitor well network that provides both groundwater level data to demonstrate hydraulic capture and groundwater quality data to demonstrate overall reduction of mass within and outside the capture zone(s). Additional groundwater elevation and quality data are needed to adequately evaluate the OU1 system. The monitoring network needs to be evaluated and updated based in current site conditions and issues.	Unknown	Unknown
2		Based on a conservative interpretation of the data, using converging lines of evidence, it appears that capture of the Target Capture Zone (TCZ) in bedrock is uncertain. Additional bedrock monitor wells are needed to address the uncertainty of capture in bedrock both downgradient of the on-site system (DM-125, DM- 601, and DM-606 areas) and the OCC system (between OCC and DM-118, DM-119, DM-120, DM-122, DM-123, DM-502, and DM503 area). Freescale installed one multiport bedrock well; however, an increased monitor well network is needed to support the assessment of capture in bedrock.	Unknown	Unknown
3		Based on a conservative interpretation of the data, using converging lines of evidence, it appears the TCZ in the vicinity of EW-18 is questionable. Additional alluvial and bedrock monitor wells are needed in the vicinity of EW-18 to address the extent of contamination and evaluate capture of the TCZ.	Unknown	Unknown
4		Extraction primarily from the alluvial aquifer is credited for hydraulic capture at substantial depth in the bedrock aquifer. ADEQ is concerned that declining groundwater elevations at the site due to both regional decline and OU1 pumping will reduce the effectiveness of bedrock capture. As yield from the alluvial aquifer decreases, resulting changes in the predicted vertical capture needs to be addressed. The potential finite capacity of the system to capture bedrock contamination as the regional aquifer continues to decline represents a potential remedy problem.	Unknown	Unknown
5		Concentrations in extraction well DM-313 are currently very close to the MCL for TCE. Concentrations in this well have been increasing slightly over the last three years. If concentrations continue to increase and exceed the MCL, this well must be put back into operation.	No	Unknown
6		ADEQ is concerned that the source area interim remedy is not significantly effective in reducing the levels of contaminants due to the DNAPL in the fractured bedrock. ADEQ is concerned that high concentrations of TCE will continue in the source area wells for a long period of time.	Yes	Unknown

7	<b>Groundwater Source Removal</b>	Groundwater concentrations in the shallow bedrock ports of DM-125 and DM-601 appear to be increasing. These data indicate that the onsite groundwater extraction system may not be reducing or eliminating contaminant migration from the source area.	Yes	Unknown
8	<b>Soil</b>	Soil sampling should be conducted at the Courtyard to assess residual contamination levels and should be conducted in conformation with the Arizona Soil Rule and once guidance has been finalized.	Yes	Unknown
9		The Consent Order required that a soil vapor extraction (SVE) system be installed at the ATP. No active soil remediation has been conducted in the ATP area to date. Soil sampling should be conducted at the ATP to evaluate contamination levels in conformance with the Arizona Soil Rule and once guidance has been finalized.	Yes	Unknown
10	<b>Health Assessment</b>	Changes to the toxicity levels for certain contaminants have occurred since the last five-year review.	Unknown	Unknown
11		New methodology is being developed for indoor air risk evaluation. Once the methodology is finalized or EPA and ADEQ can agree to the process for evaluating the pathway, an indoor air risk evaluation should be performed for the OU1 area.	Unknown	Unknown
12		The Baseline Risk Assessment and Health Assessments recommended to sample Mr. Morgan's well. Access may be an issue for sampling this well. A plan should be developed regarding this well.	Unknown	Unknown
13		There is a potential for unregistered, private wells to exist in the OU1 Area.	Unknown	Unknown
14	<b>O&amp;M</b>	The secondary containment system's protective coating showed signs of weathering (e.g., cracking, peeling, lifting).	No	Unknown
15		All Polyvinyl Chloride (PVC) piping, valves, and other appurtenances showed signs of ultraviolet light weathering (e.g., brittle appearance).	No	Unknown
16		The stainless steel steam pressure tanks were stress corroded and cracked.	No	Unknown
17		Most steel appurtenances showed signs of rusting and/or corrosion.	No	Unknown
18	<b>General</b>	The contaminants of concern (COC) should be identified for the final remedy.	No	Unknown
19		Air emissions and influent/effluent analytical data are an important tool for evaluating the effectiveness of the treatment system and should be reported in the annual Effectiveness Reports.	No	Unknown

20		Additional upgradient sources to groundwater contamination may exist.	No	Unknown
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## V. Status of Follow-up Actions and Recommendations

Issue #	Issue Type	Follow-up Actions and Recommendations	Responsible Party	Oversight Agency	Completion Date	STATUS
1, 2, 3	Groundwater Capture	A work plan should be prepared and submitted to ADEQ to address the OU1 data gaps identified in Section 8.1.1. The work plan should include a summary of the current conceptual site model, a review of the existing OU1 groundwater monitoring well network and other available data, identify the data gaps, and propose the work necessary to fill the data gaps.	Freescall, ADEQ	ADEQ	9/28/2007	Freescall is working on installing additional wells near the Old Cross Cut Canal that will help evaluate capture of the treatment system. Additional Data Gaps will need to be addressed.
4		A work plan should be prepared and submitted to ADEQ to address the bedrock hydraulic conductivity and extraction issues. The work plan should include the installation of a deep bedrock extraction and monitor wells such that a bedrock extraction pilot study may be completed to evaluate bedrock hydraulic conductivity. The results of the study should be incorporated into the feasibility study for the final remedy.	Freescall	ADEQ	9/28/2007	Freescall is developing a work plan to conduct a pilot study to evaluate hydraulic conductivity in the bedrock zone.
5		Freescall should prepare a plan to monitor the concentrations in DM-313. If these concentrations continue to increase and exceed the MCL, the well should be put back into operation.	Freescall	ADEQ	9/28/2007	Freescall and ADEQ to evaluate concentrations using results of sampling events.

6	<b>Groundwater Source Removal</b>	Freescall submitted a Groundwater Remedial Alternatives Analysis report in September 2005 followed by an Addendum to the Groundwater Remedial Alternatives Analysis report in December 2005 evaluating treatment technologies for DNAPL. The report is currently under review by ADEQ.	Freescall, ADEQ	ADEQ	12/29/2006	Comments provided by ADEQ in a letter dated October 16, 2006.
7		Freescall should prepare a plan to evaluate the effectiveness of the source area treatment system.	Freescall	ADEQ	9/28/2007	ADEQ will schedule time to discuss the issue with Freescall.
8	<b>Soil</b>	Freescall should develop a work plan to evaluate the vadose zone at the Courtyard area. The work plan should include evaluation criteria for clean-up. ADEQ will provide Freescall with the evaluation criteria once the Soil Rule and guidance is finalized.	Freescall, ADEQ	ADEQ	1 year following promulgation of Soil Rule and Guidance	ADEQ and Freescall will meet to discuss development of the work plan.
9		A work plan should also be developed for establishing clean-up criteria at the ATP. The criteria will be established once the Soil Rule and guidance is finalized and should be included in the work plan.	Freescall, ADEQ	ADEQ	1 year following promulgation of Soil Rule and Guidance	ADEQ and Freescall will meet to discuss development of the work plan.
10	<b>Health Assessment Issues</b>	A review of the toxicity values for COCs at the Site should be conducted before the final remedy is selected.	ADEQ, EPA	ADEQ, EPA	ongoing	ongoing
11		Freescall has previously prepared a work plan to address the vapor intrusion to indoor air pathway. Once the guidance for evaluating the vapor intrusion to indoor air pathway is finalized or EPA and ADEQ can agree to the process for evaluating the pathway, an indoor air risk evaluation should be conducted at the Site. The work plan should be updated to meet the final guidance requirements.	Freescall, ADEQ	ADEQ	1 year following ADEQ and EPA agreement on process	At this time, ADEQ does not have a policy on vapor intrusion.

12		ADEQ and Freescale should develop a plan to collect groundwater samples from Mr. Morgan's well and take further actions if necessary.	Freescale, ADEQ	ADEQ	9/28/2007	Access was granted to ADEQ. A sample was collected by ADEQ and Freescale on July 13, 2007. The property owner uses the well for landscaping purposes.
13		ADEQ issues a fact sheet every other year to all the addresses listed within the Motorola 52nd Street Superfund Site. ADEQ will include a note in the next fact sheet requesting owners to notify ADEQ of any private well.	ADEQ	ADEQ	9/28/2007	The note was added to the fact sheet that was mailed out in May 2007
14	<b>O&amp;M</b>	The secondary containment system's protective coating should be repaired.	Freescale	ADEQ	9/28/2007	Freescale to address
15		The PVC piping, valves, and other appurtenances that show signs of weathering should be replaced.	Freescale	ADEQ	9/28/2007	Freescale to address
16		The stainless steel steam pressure tanks should be replaced if they are brought back into use.	Freescale	ADEQ	9/28/2007	As a necessary component of treating air emissions, the tanks were replaced with a new "roll-off" type air emission control device. If brought back into service, ADEQ will require Freescale to replace the stainless steel steam pressure tanks.
17		Steel appurtenances that show signs of rusting and/or corrosion should be replaced.	Freescale	ADEQ	9/28/2007	Freescale to address



18	<b>General</b>	ADEQ and Freescale should establish a list of COCs for the Site. Once the list has been established, Freescale should conduct a sampling round to evaluate the COC list for the RAOs for the final remedy.	Freescale	ADEQ	9/28/2007	ADEQ is evaluating.
19		Freescale should include the air emission and groundwater influent/effluent analytical data in the annual Effectiveness Reports.	Freescale	ADEQ	9/28/2007	Freescale will include data in the annual Effectiveness Reports
20		ADEQ will conduct a PRP search for upgradient sources and will evaluate whether these sources will impact the remedy.	ADEQ	ADEQ	9/28/2007	ongoing

**Notes**

ADEQ - Arizona Department of Environmental Quality

ATP - Acid Treatment Plant

COC - Contaminant of Concern

DNAPL - Dense Non-Aqueous Phase Liquid

EPA - Environmental Protection Agency

EW - Extraction Well

MCL - Maximum Contaminant Level

O&M - Operation and Maintenance

OU1 - Operable Unit 1

PRP - Potential Responsible Party

RAO - Remedial Alternative Objective

TCE - Trichloroethene

VOC - Volatile Organic Compounds

## **VI. New Protectiveness Statement**

A protectiveness determination of the OU1 interim remedy cannot be made at this time until further information is obtained. The necessary follow-up actions and recommendations identified in this report are needed to evaluate protectiveness. The actions will require the efforts of Freescale and ADEQ to be completed.